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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,962	05/30/2002	Robert William Bruce	13DV-13657	4043

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

10/063,962

BRUCE, ROBERT WILLIAM

Examiner

Jennifer C. McNeil

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 9-14 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 4, 6-8, 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the amendment received July 28, 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, and 9-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Rigney et al (US 6,586,115).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Rigney teaches a coating on a surface wherein the coating consists essentially of zirconia stabilized by up to 3 wt% yttria and to which may be alloyed lanthana in a range of 5.8-22.5 wt%. The term “about 5 wt%” is considered to encompass the range taught by Rigney '115.

Regarding claim 11, Rigney teaches a bond coat (24).

Regarding claim 12, the bond coat may be a platinum aluminide (col. 4, lines 30-35).

Regarding claim 13, the article of Rigney may be used as a turbine blade (col. 4, lines 10-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 9-14, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rickerby et al (US 6,025,078). Rickerby teaches a thermal barrier coating comprising zirconia, 4-20 wt% yttria, and 5-25 wt% neodymia (col. 4, lines 42-48). The neodymia is added to reduce the thermal conductivity of the ceramic thermal barrier coating. The addition of the second oxide is performed by distributing the oxide substantially evenly throughout the lattice structure of the ceramic thermal barrier coating. While instant claim 1 recites "up to 4 weight percent neodymia", Rickerby also clearly states that any suitable amount of the second oxide (neodymia) may be used, for example it may be possible to use less than 5 wt% and still obtain a reduction in thermal conductivity of the ceramic thermal barrier coating. While Rickerby does not specify a range for "less than 5 wt%", an amount of 4 wt% is considered to be close enough to "less than 5 wt%" to have the full expectation of successfully providing the desired reduction in thermal conductivity. Therefore, with the teaching of Rickerby that less than 5 wt% of neodymia may be used and still obtain the desired reduction in thermal conductivity of the barrier coating, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an amount less than 5 wt%, such as 4 wt%, and fully expect the coating to successfully reduce thermal conductivity of the ceramic thermal barrier coating.

Regarding claims 2, 9, and 18, the coating may include only zirconia, yttria, and neodymia.

Regarding claim 10, the range of the yttria overlaps at 4 wt%.

Regarding claims 11 and 14, the substrate may be a superalloy and a bond coat may be used between the substrate and the thermal barrier coating.

Regarding claims 12 and 19, the bond coat may be a platinum aluminide.

Regarding claims 13 and 20, the component may be a gas turbine airfoil.

Claims 1-3, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rigney et al (US 6,586,115). Rigney teaches a coating on a surface wherein the coating consists essentially of zirconia stabilized by up to 3 wt% yttria and to which may be alloyed lanthana in a range of 5.8-22.5 wt%. The instant claims recite a lanthana range of "up to about 5 wt%". The value "5.8" taught by Rigney is considered to be an overlapping value of "about 5". Absent a showing otherwise, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a lanthana range approximating "about 5" or 5.8, with the expectation of successfully providing a thermal barrier with reduces thermal conductivity.

Regarding claim 11, Rigney teaches a bond coat (24).

Regarding claim 12, the bond coat may be a platinum aluminide (col. 4, lines 30-35).

Regarding claim 13, the article of Rigney may be used as a turbine blade (col. 4, lines 10-15).

Allowable Subject Matter

Claims 4, 6-8, and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 5, 9-14, and 18-20 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues that Rickerby '078 does not teach a range for "less than 5 wt%" and that the amendment to 4 wt% defines around the range of 5-25 wt%.

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As stated above, while Rickerby does not specify a range for "less than 5 wt%", an amount of 4 wt% is considered to be close enough to "less than 5 wt%" to have the full expectation of successfully providing the desired reduction in thermal conductivity. Therefore, with the teaching of Rickerby that less than 5 wt% of neodymia may be used and still obtain the desired reduction in thermal conductivity of the barrier coating, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an amount less than 5 wt%, such as 4 wt%, and fully expect the coating to successfully reduce thermal conductivity of the ceramic thermal barrier coating.

Regarding the double patenting rejection over 09/833,446, now Patent No. 6,586,115, the double patenting rejection has been withdrawn due to amendments to both applications, and the allowed claims of the patent.

The rejection of Spengler in view of Tien has been withdrawn in view of applicant's comments.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is (703) 305-0553. The examiner can normally be reached on 9-6, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0611.



JCM
October 8, 2003

Jennifer C. McNeil
Examiner
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